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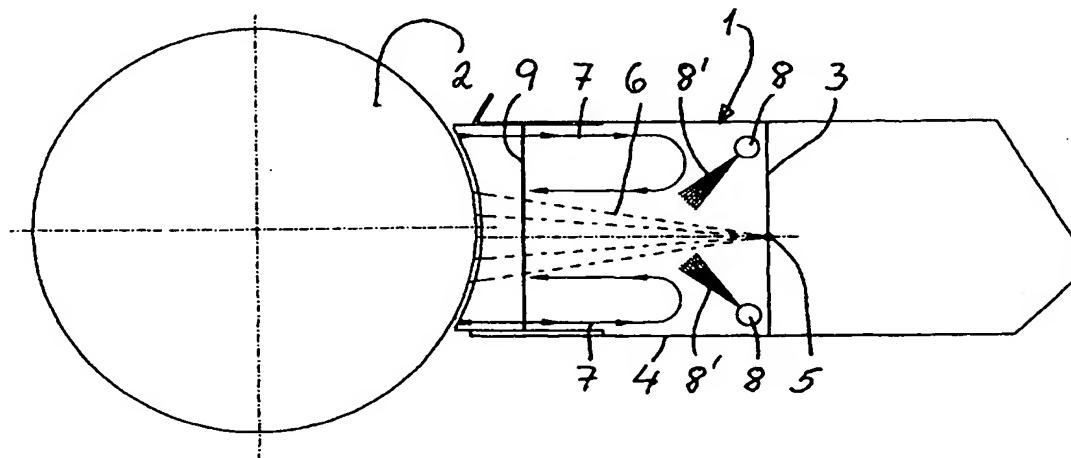
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(54) Title: **A SPRAY DAMPENING APPARATUS**



(57) Abstract: Spray nozzles (5) and/or a screening plate (9) in a spray casing (4) of a spray dampening apparatus arranged at a printing press roller (2) may be clogged by printing ink mist entering the spray casing. In order to obviate this, an air stream (8') from a slitted air tube (8) is caused to flow towards the printing press roller (2) in the spray casing (4).

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A SPRAY DAMPENING APPARATUS

Field of the Invention

5 The present invention relates to a method and device for preventing clogging of spray nozzles and/or a screening plate of a spray dampening apparatus arranged at a printing press roller.

Technical Background

10 A spray dampening apparatus is arranged in the proximity of a printing press roller for spraying fountain solution thereon. This fountain solution is needed for obtaining the intended printing function in the printing press, as is well known in the art. (Other liquids than
15 fountain solution could alternatively be sprayed.)

 It is also well known in the art that at the high speed rotation of the different rollers in the printing press, it is difficult to obviate the formation of a mist of printing ink and other matters in and around the press.
20 This printing ink mist causes certain problems in the operation of the press.

 The printing ink mist causes clogging of the spray nozzles of the spray dampening apparatus, so that their intended spray function gradually deteriorates and the
25 spray pattern of the spray dampening apparatus is changed.

 In a special design of the spray dampening apparatus a screening plate is provided in a spray casing in front of the spray nozzles. The screening plate is provided with openings for letting through to the printing press roller
30 only a portion of the fountain solution sprayed by the spray nozzles. These screening plate openings may be clogged by the entering printing ink mist, so that the screening function of the screening plate is changed in a non-predictable way.

The Invention

This clogging may according to the invention be prevented in that streams of clean air are caused to flow towards the printing press roller along the spray cones from the spray nozzles in order to break up approaching, dirty air streams.

In a device for carrying out the invention a slitted air tube for emitting an air stream towards the printing press roller is arranged at each side of the spray nozzles.

Brief Description of the Drawing

The invention will be further described below under reference to the accompanying drawing illustrating a spray dampening apparatus according to the invention at a printing press roller in a sectional and schematic side view.

Detailed Description of Embodiments

A spray dampening apparatus 1 of a generally conventional design is mounted in the vicinity of a printing press roller 2. It comprises a spray beam 3 in a longitudinal spray casing 4. Spray nozzles 5, preferably for spraying fountain solution, are arranged in the spray beam 3. They are preferably evenly distributed for obtaining an even spray pattern on the roller 2 from spray cones 6 emanating from the nozzles 5.

The spray casing 4 is generally closed except at its side facing the roller 2. As shown, the side walls of the spray casing 4 are curved in correspondence to the curvature of the roller 2, so that only a small circumferential gap appears between the roller 2 and the spray casing 4.

The environment in a printing press is comparatively harsh with for example a mist of printing ink and possibly other matters being formed in the region where the roller is situated.

The mist can enter into the spray casing 4 through said gap, as is illustrated by arrows 7. Conventionally, this mist causes problems with clogging of the interior of the spray casing 4, especially the spray nozzles 5 with a gradually deteriorating operation thereof as result.

In order to obviate this problem, there is shown an arrangement creating an air stream towards the roller 2 in the spray casing 4. In the shown case the arrangement comprises two longitudinal slitted air tubes 8 one at each side of the row of spray nozzles 5. These slitted tubes direct air streams 8' obliquely forwards in the spray casing 4. The purpose of these air streams 8' is to prevent the intrusion of the printing ink mist into the spray casing 4 and to create an overpressure therein.

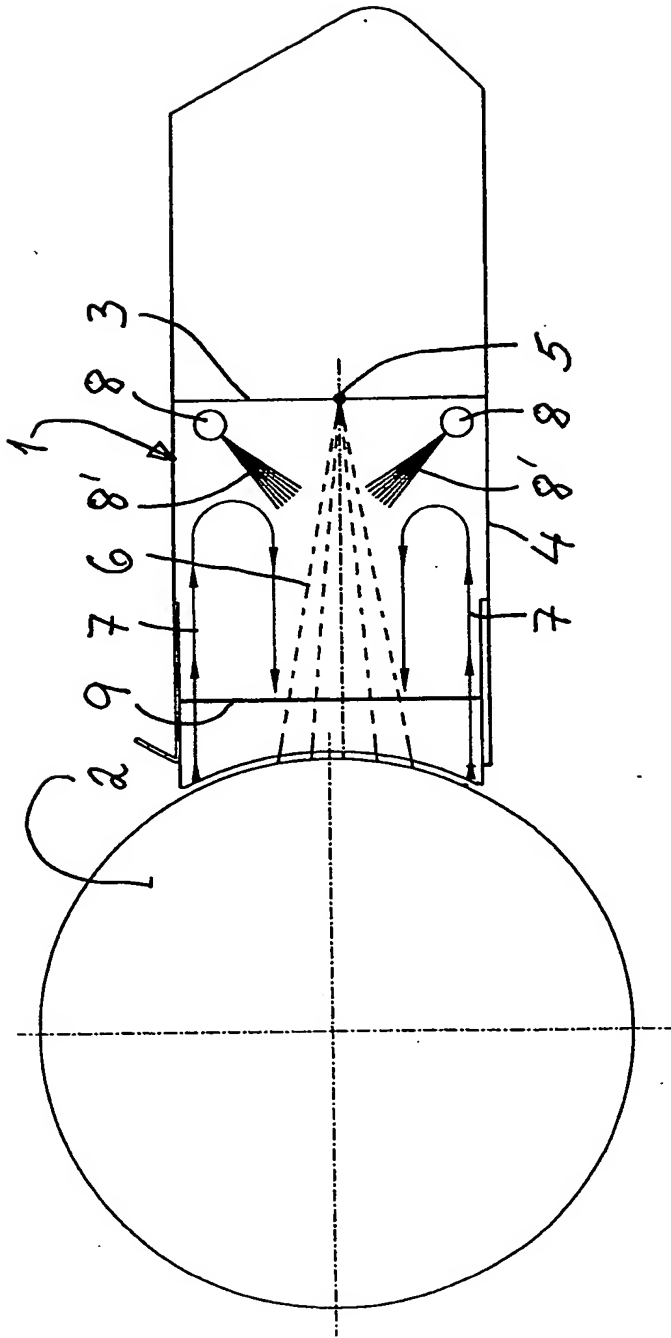
As a special case and as shown in the drawing, a screening plate 9 provided with openings for letting through only a certain portion of the fountain solution from the spray nozzles 5 may be arranged in the spray casing 4. The screening plate openings are gradually clogged by the printing ink mist, which may be prevented by the air streams 8'.

It is an increased tendency in the art to use a spray dampening apparatus without a spray casing and with the spray nozzles arranged as hitherto on a spray beam. The discussed problem with clogged spray nozzles may also appear at such a construction. In order to obviate this problem by air streams according to the invention, it is of importance to position the slitted air tubes 8 at the spray nozzles in an optimal way. It appears advantageous to place the air tubes 8 close to the row of spray nozzles 5 and to direct the air streams along the borders of the spray cones 6 from the nozzles.

As an alternative to emitting the air streams from slitted air tubes 8, it is possible to make use of air nozzles.

CLAIMS

1. A method for preventing clogging of spray nozzles (5) and/or a screening plate (9) of a spray dampening apparatus (1) arranged at a printing press roller (2),
5 c h a r a c t e r i z e d in that streams (8') of clean air are caused to flow towards the printing press roller (2) along the spray cones (6) from the spray nozzles (5) in order to break up approaching, dirty air streams.
2. A device for carrying out the method of claim 1,
10 c h a r a c t e r i z e d in that means (8) for emitting an air stream (8') towards the printing press roller (2) are arranged at each side of the spray nozzles (5).
3. A device according to claim 2, c h a r a c t e r i z e d in that said means is a slitted air tube (8).
- 15 4. A device according to claim 2, c h a r a c t e r i z e d in that said means are air nozzles.



INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B41F 7/30, B05B 15/02, B41F 35/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B41F, B05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI-DATA, EPO-INTERNAL, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 5040457 A (LIN), 20 August 1991 (20.08.91) --	1-4
A	EP 0607751 A1 (SAKURAI GRAPHIC SYSTEMS CORPORATION), 27 July 1994 (27.07.94) --	1-4
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A	US 4569484 A (PHATAK), 11 February 1986 (11.02.86) --	1-4

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT
Information on patent family members

02/08/01

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